

Claims 1, 3, 6, 9-11, 14, 19-23, 28, 30, 33, 34, 36-40, 42, and 45-53 are pending in the present application. Claim 28 is amended. No new matter has been added. Applicants respectfully request reconsideration of the claims in view of the following remarks.

As an initial matter, Applicants thank Examiner for allowing claims 1, 3, 6, 9-11, 14, 19-23, and 45 and for the indication of allowable subject matter in claims 28, 39, 40, 42, 46, 48, and 53.

Examiner objected to claim 28 because of the informality that claim 28 depends from claim 24 which was canceled. Applicants have amended claim 28 to an independent form containing appropriate limitations of originally submitted claim 24. Applicants request reconsideration of claim 28 as amended.

The Office Action rejected claims 30 and 47 under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. Applicants respectfully traverse this rejection. Examiner stated that “‘comparing the computed weighted vector’ and ‘comparing the first and second CLTD weighting vectors’ are not clearly described in [the] specification [H]ow the comparison is done is unclear.” (Office Action pp. 2-3). Applicants cite paragraphs [0047] and [0063] which further explain the comparison. Specifically, paragraph [0047] states, “The delay block can be used to permit the comparison of the weighting vector being fed back to the transmitter and the weighting vector being used by the transmitter to transmit its data.” Paragraph [0063] provides:

The verification of the weighting vector, w , may involve the computation of a new weighting vector and then comparing it with the weighting vector, w , computed in block 825. Alternatively, the general performance of the received transmission using the computed weighting vector, w , may be compared with received transmissions without the use of the weighting vector.

Applicants' specification provides sufficient and enabling explanation for a person of ordinary skill in the art to compare the weighting vectors. Therefore, the specification meets the enablement requirement for claims 30 and 47 and Applicants respectfully request withdrawal of this rejection.

The Office Action rejected claims 30, 33, 34, and 36-38 under 35 U.S.C. § 103(a) as being unpatentable over Paulraj *et al.*, (U.S. Patent Publication No. 2002/0027957, hereinafter "Paulraj") in view of Kim *et al.*, (U.S. Patent No. 6,766,144, hereinafter "Kim"). Applicants respectfully traverse this rejection.

Claim 30 is allowable over the cited references. First, claim 30 recites "a feedback unit coupled to the weighting vector unit." Examiner cited Paulraj as disclosing the weights computation block 112 in Figure 10B as the weighting vector unit and the feedback to transmitter in Figure 9 as the feedback unit. (Office Action p. 3). But, assuming Examiner's interpretation is correct, solely for the purpose of this argument, Paulraj does not teach or suggest the limitations cited. The weights computation block 112 in Figure 10B is coupled only to the space-time equalizer 114 and the joint channel estimator (reference number 88 in Figure 9). Paulraj never teaches or suggests that the feedback to transmitter element in Figure 9 is ever coupled to the weights computation block 112. Further, Kim does not teach or suggest this limitation.

Second, claim 30 recites:

the weighting vector unit containing circuitry to compute a computed weighting vector from the estimate of the communications channel; . . .
the weight verification unit containing circuitry to generate a comparison result by comparing the computed weighting vector with a received weighting vector received by the signal input.

Examiner cited Paulraj in stating, "[T]he weighting vector unit containing circuitry to compute a computed weighting vector from the estimate of the communications channel (112 in Fig. 10B;

[0091]].” (Office Action p. 3). Examiner cited Kim as “disclos[ing] an optimum weight estimating method in a closed loop transmit diversity system (Fig. 1), wherein the weight vector determiner (23 in Fig. 2) generate a comparison result by comparing the computed weighting vector with a received weighting vector received by the input signal (Col 7, L65-Col 8, L51).” (Office Action p. 4). Assuming Examiner’s interpretation to be true solely for the purpose of this argument, neither reference teaches or suggests comparing a computed weighting vector from the estimate of the communications channel with a received weighting vector received by the signal input. Kim discloses a weight vector set generator 22 that outputs a weighted vector set (Col. 6, line 66 - col. 7, line 1) with the only input into the weight vector set generator being the number of possible values of an optimum weight (Col. 7, lines 20-23), in contrast to any estimate of a communications channel. Thus, neither Kim nor Paulraj teach or suggest comparing a computed weighting vector from the estimate of the communications channel with a received weighting vector received by the signal input.

Accordingly, neither Paulraj nor Kim, either individually or in combination, teach or suggest the limitations of claim 30, and Applicants respectfully submit that claim 30 is allowable over the cited references.

Claims 33, 34, and 36-38 depend from claim 30 and add further limitations. Applicants respectfully submit that claims 33, 34, and 36-38 are allowable by reason of depending from an allowable claim as well as for adding new limitations.

The Office Action rejected claims 47, 49, and 50 under 35 U.S.C. § 103(a) as being unpatentable over Das *et al.*, (U.S. Patent Publication No. 2003/0148770, hereinafter “Das”) in view of Kim. The Office Action rejected claims 51 and 52 under 35 U.S.C. § 103(a) as being unpatentable over Das in view of Kim, and in further view of Liang *et al.*, (U.S. Patent

Publication No. 2003/0165131, hereinafter “Liang”). Applicants respectfully traverse these rejections.

Claim 47 is allowable over the cited references. Claim 47 recites:

the receiver computing a first CLTD weighting vector from the first received signal; . . .
receiving a second signal weighted by a second CLTD weighting vector at the receiver;
the receiver comparing the first and second CLTD weighting vectors.

Examiner admitted that Das does not teach “comparing the first and second CLTD weighting vectors.” (Office Action p. 5). Examiner then cited Kim as “disclos[ing] an optimum weight estimating method in a closed loop transmit diversity system (Fig. 1), wherein the weight vector determiner (23 in Fig. 2) generate a comparison result by comparing the computed weighting vector with a received weighting vector received by the input signal (Col 7, L65-Col 8, L51).” (Office Action p. 6). Assuming Examiner’s interpretation is true, solely for the purpose of this argument, Kim and Das fail to teach or suggest comparing a first weighting vector computed from a first received signal and a second weighting vector from a second signal received at the receiver. Kim discloses a weight vector set generator 22 that outputs a weighted vector set (Col. 6, line 66 - col. 7, line 1) with the only input into the weight vector set generator being the number of possible values of an optimum weight (Col. 7, lines 20-23), in contrast to any received signal at the receiver. Accordingly, neither Das nor Kim, either individually or in combination, teach or suggest all of the limitations of claim 47, and Applicants respectfully submit that claim 47 is allowable over the cited references.

Claims 49 and 50 depend from claim 47 and add further limitations. Applicants respectfully submit that claims 49 and 50 are allowable by reason of depending from an allowable claim as well as for adding new limitations.

Claims 51 and 52 are allowable. Claims 51 and 52 depend from claim 47. As stated above, claim 47 is allowable over Das and Kim. Liang does not disclose the limitations that Das and Kim do not teach. Therefore, Das, Kim, and Liang, either individually or in combination, fail to teach or suggest the limitations of claims 51 and 52, and Applicants respectfully submit that claims 51 and 52 are allowable over the cited references.

In view of the above, Applicants submit that the claims are in condition for allowance. No new matter has been added by this amendment. If the Examiner should have any questions, please contact Applicants' Attorney, Ron Neerings, at 972-917-5299. The Commissioner is hereby authorized to charge any fees due in connection with this filing, or credit any overpayment, to Deposit Account No. 20-0668.

Respectfully submitted,

October 28, 2008
Date

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